

NEW GENERA AND SPECIES OF PHILIPPINE
MEMBRACIDÆ

By W. D. FUNKHOUSER

Of the Zoölogical Laboratory of the University of Kentucky

ONE PLATE

Recent collecting by Prof. C. F. Baker, of Los Baños, in some of the hitherto unexplored parts of the Philippine Islands has yielded new species of Membracidæ so remarkable in appearance that it seems desirable to give them a place in the literature of the family as soon as possible after their discovery.

Six of these new species are here described, two of which are so peculiar in character as to demand new genera for their accommodation.

All of these insects were collected by Professor Baker, to whom I am greatly indebted for the privilege of studying much interesting Philippine material.

Genus *CLONAUCHENIA* novum

Near *Hypsauchenia* Germ., but differing greatly in the shape and position of the pronotal elevation which is laterally branched.

Scutellum present but entirely concealed by the pronotum; tibiæ foliaceous; sides of thorax extended to form two small teeth; tegmina largely coriaceous and almost entirely opaque, venation very irregular; hind wings with four apical areas; anterior process of pronotum widely, horizontally extended at top to form a heavy trilobed expansion; posterior process elevated to form a high, flattened, foliaceous plate, the tip extending almost to the anterior process; head foliaceous; clypeus strongly trilobed.

This genus may be separated at once from the genera *Hypsauchenia* Germ., *Pyrgonota* Stål, *Pyrgauchenia* Bredd., *Pyrgolyrium* Bredd., and *Pyrgophyllum* Bredd., all of which are closely related, by the remarkable development of the anterior process, which is so greatly modified at the distal end that it forms a central bulbous lobe with a heavy swollen horn on each side.

The genus is erected for the accommodation of the following species which is proposed as the type:

Clonauchenia mirabilis sp. nov. Plate 1, figs. 1 and 2.

Dark brown, roughly sculptured, coarsely punctate, sparingly pubescent; head trilobed; anterior pronotal process elevated, widely expanded above to form a heavy, trilobed, transverse branch, the outer lobes of which are modified to form swollen horns; posterior process elevated to form a flattened subtriangular plate which reaches almost to the middle lobe of the anterior process; tegmina opaque and coriaceous; mesothorax and metathorax covered with white tomentose pubescence; legs foliaceous.

Head dark brown, finely punctate, sparsely pubescent, irregularly sculptured, longer than wide, subtriangular; base irregularly rounded; eyes very dark brown; ocelli large, prominent, pearly, glistening, much farther from each other than from the eyes and situated well above an imaginary line drawn through centers of eyes; margins of genæ sinuate and produced; clypeus longer than wide, strongly trilobed, tip pilose.

Pronotum dark brown, irregularly sculptured with anastomosing ridges, coarsely punctate, not pubescent except on sides of anterior process which are slightly white tomentose; metopidium convex; median carina irregularly prominent; anterior pronotal process rising as a column above the head and spreading out at the tip to form a swollen transverse expansion, this expansion roughly trilobed, the central lobe more or less globular, the lateral lobes projecting outward to form heavy swollen nodular horns with ends suddenly acute; posterior process elevated to form a high, laterally compressed plate, which is roughly triangular in shape, the anterior margin concave, the posterior margin twice as long as the anterior and convex, the tip sharp and almost reaching the posterior margin of the middle lobe of the anterior process; the opening between the anterior and posterior processes smoothly ovate as seen from a side view; posterior process in type specimen broken at tip but extending beyond internal angles of tegmina.

Tegmina long and narrow, dark brown, base and two-thirds of costal margin opaque, coriaceous and strongly punctate, distal half semiopaque; tips diagonally truncate; venation irregular, in type specimen five apical and five discoidal cells. Hind wings with four apical cells.

Scutellum entirely concealed by the pronotum. Sides of mesothorax and metathorax covered with white tomentose pubescence which extends in a faint irregular area up the pronotum behind the eye and almost to the top of the anterior process; lower mar-

gins of mesothorax and metathorax extended to form rough toothlike projections.

Legs moderately foliaceous and flattened; finely pilose and closely spined; lighter in color than the rest of the body; tarsi ferruginous and finely pilose; claws flavous.

Undersurface of body very dark brown with white tomentose hairs on undersurface of abdomen.

Length to tips of tegmina, 8 millimeters; width between humeral angles, 2.6; maximum width of anterior process, 6.8; height of anterior process above head, 5.5.

Type, a male, in Professor Baker's collection.

MINDANAO, Surigao (*Baker*).

In sending me this specimen, Professor Baker writes:

I am sending a single unique specimen of the *most remarkable* of Philippine Membracidae. It is very strange that it should have taken eight years of collecting to produce this one specimen. It only indicates that of the great fauna of the *high forests* we yet know but little.

It is certainly a remarkable insect and the specific name was naturally suggested.

Genus MESOCENTRUS novum

Near *Cryptaspidia* Stål but differing in having four apical cells in the hind wing and in having a high central elevation of the pronotum, suggesting the genus *Telamona* of the subfamily Smiliinæ.

Tibiæ simple; hind trochanters unarmed; hind wings with four apical areas; tegmina with five apical and three discoidal areas; scutellum present but entirely concealed by the pronotum; suprahumeral horns absent; dorsal crest simple, erect, without branches or extensions of any kind; posterior process heavy, curved, the tip bearing a sharp, narrow, carinate projection on the undersurface; head subquadrate; clypeus simple.

I have never seen a specimen of Melichar's genus *Monocentrus*¹ to which this genus is apparently closely related, but according to the description the insects belonging to *Monocentrus* have the pronotal crest branched and the posterior process angular as in *Anchon* Buckton.

Mesocentrus pyramidatus sp. nov. Plate 1, figs. 3 and 4.

Very dark brown with golden pubescence; pronotal crest arising in a pyramid above the humeral angles, this pyramid flat-

¹ Wien. ent. Zeit. (1905) 297.

tened laterally and nearly triangular as seen from a side view; no suprahumeral horns; posterior process heavy, curved, carinate above, tip compressed below into a sharp keel, just reaching internal angles of tegmina; tegmina black, punctate, pubescent and coriaceous at base, bronze and coriaceous from base as far as apical end of posterior process, apical end fuscous hyaline; legs and undersurface of body uniform brown.

Head subquadrangular, broader than long, very dark brown, roughly sculptured, finely punctate, sparingly pubescent with long golden hairs; base strongly sinuate, raised above ocelli; eyes large, brown, prominent; ocelli small, pearly, inconspicuous, farther from each other than from the eyes and situated well above a line drawn through centers of eyes; genæ curved, edges produced forward in a slight flange; clypeus broad, extending for half its length below the lateral margins of the genæ, tip semicircular, strongly pilose; antennæ slender and black.

Pronotum very dark brown, covered with dense golden pubescence, finely punctate, single pronotal crest raised in a laterally compressed elevation on median dorsal line, this elevation not quite as high as its width at base, nearly triangular, tip rounded and blunt, center of crest slightly posterior to humeral angles, both front and back margins sloping but front margin more declivous; humeral angles broad, heavy, blunt; no suprahumeral horns; metopidium strongly convex at median line; median carina percurrent, only faintly indicated on metopidium but very sharp on posterior process; scutellum present but entirely concealed by pronotum; posterior process heavy, impinging on tegmina, curved, blunt, strongly carinate above and extended below at tip to form a narrow bladelike keel, tip just reaching the internal angles of tegmina.

Tegmina narrow, pointed; base black, punctate, and coriaceous, this portion extending farther along the costal than the internal margin; the area extending from this black coriaceous portion to a point as far caudad as the apex of the posterior process is shining dark brown and more or less opaque and ends in a rather definite margin; the apical portion of the tegmina is hyaline with the tip slightly tinged with fuscous; veins prominent and strongly pilose; free margin beyond veins narrow and slightly wrinkled; five apical and three discoidal areas.

Undersurface of body entirely brown with dense golden pubescence which changes to a silvery tinge on the undersurface of the abdomen.

Legs simple, very dark brown, strongly pilose.

Length from front of head to tips of tegmina, 7 millimeters; width between humeral angles, 3.3; height from top of head to tip of crest, 2.6.

Type, a female, in Professor Baker's collection.

MINDANAO, Iligan (*Baker*).

Emphusis globosus sp. nov. Plate 1, figs. 5 and 6.

Near *E. obesus* Fairm., but differing in the formation of the pronotal elevation.

Very dark purplish brown, irregularly sculptured and coarsely punctate; white tomentose pubescence on sides of pronotum under suprahumeral horns and on mesothorax; pronotal elevation very large, nearly globular; suprahumeral horns short, blunt, continuing line of metopidium; posterior process heavy, impinging on tegmina; tegmina bronze translucent except along basal costal border which is coriaceous and punctate.

Head subtriangular, longer than wide, roughly sculptured, finely punctate, brown; base sinuate; eyes large, brown; ocelli conspicuous, amber-colored, shining, farther from each other than from the eyes and situated slightly above a line drawn through centers of eyes; a prominent longitudinal ridge just inside each ocellus; genæ extended strongly cephalad in a sinuate flange; clypeus longer than wide, strongly trilobed, outer lobes continuing line of margins of genæ, concolorous with the rest of the head, finely punctate, sparingly pilose.

Pronotum extended upward in a large globular swelling above the head, dark purplish brown, irregularly sculptured with anastomosing lines, coarsely punctate with deep irregularly shaped punctures; metopidium extremely convex, narrow at base and suddenly expanding to form a globe above; median carina strongly percurrent from head to extremity of posterior process; lateral angles large, prominent, blunt; suprahumeral horns very heavy, thick, wide, blunt, continuing curve of metopidium, extending outward and backward and very slightly downward; base of pronotum below horns on each side thickly covered with a white tomentose patch which extends downward over the mesothorax and metathorax behind the eye; posterior process thick and heavy, tip broken in type specimen but undoubtedly reaching beyond the internal angles of the tegmina on which it impinges.

Tegmina long, narrow, blunt, bronze-colored, wrinkled, subtranslucent or subcoriaceous except at base and basal costal area which is punctate, entirely coriaceous and opaque; marginal area beyond veins narrow; five apical and three discoidal areas. Hind wings hyaline; four apical areas.

Legs and undersurface of body uniform brown; tibiae subquadrate, pilose; tarsi somewhat lighter in color, pubescent.

Length from front of head to tips of tegmina, 7 millimeters; height of pronotal elevation above head, 5; width between tips of suprahumeral horns, 5.

Type, a male, in Professor Baker's collection.

MINDANAO, Dapitan (*Baker*).

Pyrgonota noditurris sp. nov. Plate 1, fig. 7.

Entirely luteous, coarsely punctate, very sparingly pubescent; anterior horn long, nearly straight, swollen at tip and strongly nodose on posterior margin; posterior process long, sinuate, gradually acuminate, extending beyond internal angles of tegmina, toothed on dorsal ridge; tegmina wrinkled, hyaline, punctate on basal half; legs strongly foliate; undersurface of body entirely luteous.

Head subquadrate, finely punctate, yellow, tinged with red, convex; base bluntly angulate; eyes small, black; ocelli very small, white, not conspicuous, about equidistant from each other and from the eyes and situated slightly above a line drawn through center of eyes; clypeus very large, strongly trilobate, extending for more than half its length below anterior margins of genæ, tip pilose.

Pronotum luteous, slightly tinged with darker on posterior margin of anterior horn; anterior horn extending upward and forward, longer than the body, strongly and coarsely punctate, two prominent swellings on posterior margin below tip, tip swollen, rounded, marked into irregular areas by ridges, sides of horn very slightly tricarinate below tip; metopidium nearly straight; humeral angles not prominent; a deep depression between eye and humeral angle; posterior process luteous, tinged with red at tip, sinuate, strongly toothed on dorsal margin, gradually acuminate, extending to a point about midway between internal angles and tips of tegmina.

Tegmina luteous hyaline, wrinkled, angular, basal half strongly punctate and somewhat coriaceous, tips pointed, venation at tips very irregular. Undersurface of body entirely luteous, lightly pubescent; legs strongly foliaceous, entirely clay yellow except claws which are brown.

Length from front of head to tips of tegmina, 5.6 millimeters; length of anterior horn from top of head, 6; width between humeral angles, 2.

Type, a female, in Professor Baker's collection.

MINDANAO, Surigao (*Baker*).

Leptobelus elevatus sp. nov. Plate 1, figs. 8 and 9.

Black, shining, punctate, partly pubescent; pronotal elevation very high, branching at top into two long, sharp, lateral horns; posterior process long, slender, decurved, arising well below bases of lateral horns and extending beyond internal angles of tegmina; scutellum entirely exposed, much longer than wide, gradually acuminate; tegmina bronze hyaline with black punctate base and brown veins; undersurface of body dark brown; legs black; tarsi flavous.

Head subquadrangular, wider than long, convex, black, shining, faintly longitudinally striate, lightly punctate, base strongly convex; eyes large, brown, mottled with flavous; ocelli small, pearly, farther from each other than from the eyes and situated well above an imaginary line drawn through centers of eyes; clypeus smooth, black, shining, flat, neither pubescent nor punctate, more or less trilobed at apex, extending for more than half its length below the apical margins of the genæ.

Pronotum black, very coarsely punctate, shining, without pubescence in front but lightly pubescent behind, rising in a cone-shaped turret above the humeral angles to a height equal to its width and then extending upward and slightly forward as a roughly cylindrical process from which is given off the posterior process at about its middle and two long, sharp, lateral horns at its extremity; lateral horns sharp, irregularly quadricarinate, extending almost directly outward, very slightly downward and with tips bent slightly backward, each horn about as long as the maximum width of the metopidium; posterior process long, slender, sharp, almost uniform in thickness throughout its length, sharply and distinctly quadricarinate, very highly elevated above the body and extending to a point about one-third the distance from the internal angles to the tips of the tegmina; humeral angles small, blunt, not prominent; metopidium convex, higher than wide; scutellum entirely exposed, longer than wide, gradually acuminate, base densely pubescent, the pubescence extending upward on the pronotum to the base of the posterior process, tip very roughly punctate and slightly decurved; tegmina smoky hyaline, bases narrowly black, coriaceous and punctate, veins brown, tips extending beyond end of abdomen.

Undersurface of body very dark brown, almost black, sparingly pubescent, with short silvery hairs; legs black, femora smooth, tibiæ strongly spined, tarsi and claws flavous.

Length from front of head to tips of tegmina, 7.6 millimeters; width between humeral angles, 3; height of pronotal process from top of head, 3.8; distance between tips of lateral horns, 5.9.

Type, a female, in Professor Baker's collection.

PALAWAN, Puerto Princesa (*Baker*).

This species may be distinguished from any previously described species of the genus by the fact that the posterior process arises well below the lateral horns.

Cryptaspidia pilosa sp. nov. Plate 1, fig. 10.

Near *C. impressa* Stål but smaller and differs in having the metopidium without a keel, the head nearly flat, the tegmina without ferruginous fascia and the clypeus only feebly pubescent.

Black, shining, punctate, pilose; pronotum strongly convex in front, smooth on metopidium, carinate on posterior process; posterior process just reaching internal angles of tegmina; tegmina hyaline except at base which is black; veins of tegmina strongly pilose; undersurface of body black; femora dark brown or black; tibiae and tarsi ferruginous.

Head much wider than long, nearly rectangular, only feebly convex between ocelli, strongly depressed between ocelli and eyes, finely punctate, closely pubescent, with short golden hairs, base sinuate; eyes large, prominent, luteous mottled with ferruginous; ocelli small, pearly, semitransparent, much farther from each other than from the eyes and situated well above an imaginary line drawn through centers of eyes; clypeus short, nearly triangular, apical margin rounded and almost continuing the lower margin of the genæ, finely punctate, feebly pubescent, with very short hairs.

Pronotum black, shining, regularly and strongly punctate, strongly pilose, with long golden hairs; metopidium wider than high, regularly rounded, not carinate, strongly pilose; lateral angles prominent, triangular, blunt, extending farther laterad than the outside margins of the eyes; posterior process short, depressed at base, gradually acuminate, tricarinate, strongly pilose, slightly deflexed at tip which just reaches internal angles of tegmina; tegmina hyaline, wrinkled, five apical and two discoidal areas, immaculate except at base which is black, punctate and pilose, the black coriaceous area extending for one-third the length of the tegmina along the costal margin but less than half that distance along the internal margin, this black area also being divided by a hyaline line through the center, veins brown,

those in center of tegmen being darkest and all strongly pilose, with long golden hairs; hind wings entirely hyaline.

Undersurface of head and thorax black; undersurface of abdomen dark brown with each abdominal segment margined posteriorly with a narrow band of sordid white.

Femora dark brown except at distal ends which are ferruginous; tibiæ ferruginous and densely pilose, those of the last pair of legs bearing small, sharp, black spines; tarsi ferruginous; claws brown.

Length from front of head to tips of tegmina, 4 millimeters; width between tips of humeral angles, 2.

The type specimen, a male, bears Professor Baker's duplicate No. 13879.

BASILAN (*Baker*).

It should be noted that the insects of the genus *Cryptaspidia*, in addition to being longer-bodied and slenderer than those of the genus *Gargara* to which they are closely allied, differ also in having the scutellum entirely concealed. They may be separated from the genus *Tricentrus* by the lack of suprahumeral horns, and from the genus *Centrotoscelus* by the absence of spines on the hind trochanters. The character of the two discoidal cells, considered by Stål as generic, does not always hold.